

Claims

1. A process for identifying a chemical compound which modulates an interaction between an EVH1 binding domain or a protein having an EVH1 binding domain and an EVH1 domain or a protein having an EVH1 domain, which process comprises:

- a) bringing an EVH1 binding domain or a protein having an EVH1 binding domain which interacts with an EVH1 domain or a protein having an EVH1 domain into contact with a chemical compound to be examined;
- b) incubating the mixture according to a) with an antibody which specifically binds to an EVH1 binding domain or a protein having an EVH1 binding domain or an EVH1 domain or a protein having an EVH1 domain or which has an antigen which is fused with or chemically coupled to these domains or proteins;
- c) incubating the mixture according to b) with an antibody which is capable of specifically binding the antibody from mixture b) and to which a label is attached that can be detected biochemically or physicochemically; and
- d) detecting the label on the antibody after incubation according to c) by biochemical or physicochemical detection.

2. The process as claimed in claim 1, wherein step a) takes place on a surface which consists of a solid body and is coated with an EVH1 binding domain or a protein having an EVH1 binding domain, wherein this EVH1 binding domain or the

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protein having the EVH1 binding domain interacts with an EVH1 domain or a protein having an EVH1 domain.

3. The process as claimed in claim 1, wherein step a) takes place on a surface which consists of a solid body and is coated with an EVH1 domain or a protein having an EVH1 domain, where the EVH1 domain or the protein having the EVH1 domain interacts with an EVH1 binding domain or a protein having an EVH1 binding domain.

4. The process as claimed in claim 2 or 3, wherein the surface which consists of a solid body forms part of a microtiter plate.

5. The process as claimed in claim 1, wherein the protein having an EVH1 domain used is VASP or a VASP derivative.

6. The process as claimed in claim 5, wherein the VASP of a vertebrate is used.

7. The process as claimed in claim 5, wherein human VASP is used.

8. The process as claimed in claim 1, wherein the protein having an EVH1 binding domain used is zyxin or a zyxin derivative.

9. The process as claimed in claim 8, wherein the zyxin derivative used is a fusion protein which consists of zyxin or a zyxin fragment and a glutathione S-transferase or of zyxin or a zyxin fragment and a maltose binding protein.
10. The process as claimed in claim 8, wherein the zyxin of a vertebrate is used.
11. The process as claimed in claim 8, wherein human zyxin is used.
12. The process as claimed in claim 1, 2, or 3, wherein a polyclonal antibody is used for the incubation according to b).
13. The process as claimed in claim 1, 2, or 3, wherein a monoclonal antibody which is synthesized using hybridoma cells is used for the incubation according to b).
14. The process as claimed in claim 13, wherein the monoclonal antibody used is mAB IE245
15. The process as claimed in claim 13, wherein the monoclonal antibody used is mAB IE273

16. The process as claimed in claim 1, 2, or 3, wherein an antibody on which the biochemically or physiochemically detectable label is a radioactive isotope, a fluorescent dye, or an enzyme is used for the incubation according to c).
17. The process as claimed in claim 16, wherein an antibody is used in which the enzyme is an alkaline phosphatase or  $\beta$ -galactosidase.
18. The process as claimed in claim 16, wherein an antibody is used in which the fluorescent dye is a lanthanide complex.
19. The process as claimed in claim 18, wherein the lanthanide complex used is a europium complex.
20. The process as claimed in claim 1, 2, or 3, for identifying a medicament.
21. A chemical compound for modulating the interaction between an EVH1 binding domain or a protein having an EVH1 binding domain and an EVH1 domain or a protein having an EVH1 domain identifiable by a process as claimed in claim 1, 2, or 3.
22. The chemical compound as claimed in claim 20, wherein the chemical compound is a peptide having a sequence selected from the sequences FPPPP or WPPPP or a proline-rich homologue or chemical derivative thereof.

23. A treatment for cardiovascular disorders, inflammatory disorders or neoplastic cell and tissue changes comprising administering to a host in need thereof a chemical compound prepared by the process of claims 1, 2 or 3.
24. Monoclonal antibody mAB IE245, which binds specifically to VASP.
25. Hybridoma cells DSM ACC2444, which are capable of producing the monoclonal antibody mAB IE245.
26. Monoclonal antibody mAB IE273, which binds specifically to VASP.
27. Hybridoma cells DSM ACC2445, which are capable of producing the monoclonal antibody mAB IE273.
28. A surface which consists of a solid body and that is coated with an EVH1 binding domain or a protein having an EVH1 binding domain or with an EVH1 domain or a protein having an EVH1 domain.
29. The surface as claimed in claim 28, wherein the protein having an EVH1 binding domain is zyxin or a zyxin derivative.

30. The surface as claimed in claim 28, wherein the zyxin derivative is a fusion protein consisting of zyxin or a zyxin fragment and a glutathione S-transferase or of zyxin or a zyxin fragment and a maltose binding protein.
31. The surface as claimed in claim 29, wherein the zyxin of a vertebrate is used.
32. The surface as claimed in claim 29, wherein human zyxin is used.
33. The surface as claimed in claim 28, wherein the EVH1 binding domain or the protein having an EVH1 binding domain interacts with an EVH1 domain or a protein having an EVH1 domain.
34. The surface as claimed in claim 33, wherein the protein having an EVH1 domain is VASP or a VASP derivative.
35. The surface as claimed in claim 34, wherein the VASP of a vertebrate is used.
36. The surface as claimed in claim 34, wherein human VASP is used.
37. A microtiter plate which contains a surface as claimed in claim 28.
38. A process for identifying chemical compounds capable of modulating an interaction between an EVH1 binding domain or a protein having an EVH1 binding

domain and an EVH1 domain or a protein having an EVH1 domain, which process comprises:

- a) bringing an EVH1 binding domain or a protein having an EVH1 binding domain into contact with an EVH1 domain or a protein having an EVH1 domain in the presence of at least one chemical compound to be examined, where in each case a fluorescent dye which enables an energy transfer between an EVH1 binding domain or a protein having an EVH1 binding domain and an EVH1 domain or a protein having an EVH1 domain is coupled to the EVH1 binding domain or a protein having an EVH1 binding domain and/or to the EVH1 domain or a protein having an EVH1 domain; and
- b) spectroscopically determining the presence or absence of chemical compounds capable of modulating an interaction following incubation according to a).

39. The process as claimed in claim 38, wherein the fluorescent dye is APC, Cy5, or a lanthanide complex such as a europium complex.

40. The process as claimed in claim 38, wherein the protein having an EVH1 domain is VASP or a VASP derivative.

41. The process as claimed in claim 40, wherein the VASP of a vertebrate is used.

42. The process as claimed in claim 40, wherein human VASP is used.
43. The process as claimed in claim 38, wherein the protein having the EVH1 binding domain is zyxin or a zyxin derivative.
44. The process as claimed in claim 43, wherein the zyxin derivative is a fusion protein of zyxin or a zyxin fragment with a glutathione S-transferase or of zyxin or a zyxin fragment with maltose binding protein.
45. The process as claimed in claim 43, wherein the zyxin of a vertebrate is used.
46. The process as claimed in claim 43, wherein human zyxin is used.
47. A method for producing a pharmaceutical preparation for modulating the interaction between an EVH1 binding domain or a protein having an EVH1 binding domain and an EVH1 domain or a protein having an EVH1 domain, which comprises adding pharmaceutical excipients and/or pharmaceutical carriers to a compound identified by the process as claimed in claim 1, 2 or 3.
48. A method for producing a pharmaceutical preparation for modulating the interaction between an EVH1 binding domain or a protein having an EVH1 binding domain and an EVH1 domain or a protein having an EVH1 domain, which comprises



adding pharmaceutical excipients and/or pharmaceutical carriers to a compound identified by the process as claimed in claim 38.